



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/820,853 | 04/09/2004 | Kazuhisa Arai | 33773M067 | 8690 |
| 441 | 7590 | 10/12/2006 | EXAMINER | |
| SMITH, GAMBRELL & RUSSELL 1850 M STREET, N.W., SUITE 800 WASHINGTON, DC 20036 | | | CADUGAN, ERICA E | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 3722 | |

DATE MAILED: 10/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Supplemental Office Action Summary

Application No.

10/820,853

Applicant(s)

ARAI ET AL.

Examiner

Erica E. Cadugan

Art Unit

3722

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 July 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892).
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

Supplemental DETAILED ACTION

1. This action supersedes the office action mailed 9/28/2006. It is noted that the Office Action Summary sheet mailed 9/28/2006 inadvertently had the box checked that indicated that the attached office action was a non-final action, rather than a final rejection. However, the Office Action itself that was mailed on 9/28/2006 indicated, on page 5 thereof, that the action was a final rejection. This supplemental action is to clarify that the action is in fact a final rejection.

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. Publication No. 2002/0004359 to Arai in view of JP-2000-173954-A (hereinafter '954).

'954 is in the same patent family as U.S. Pat. No. 6,428,393 to Yukawa et al. Thus, the U.S. Yukawa patent is being relied upon as an English-language translation of the '954 reference. As such, all references to column and line numbers of Yukawa's invention herein are with respect to the U.S. patent.

Arai teaches a machine including a "chuck table" 15 (Figure 1) on which workpieces W (see Figure 6) are held, noting that the workpiece placing surface(s) of the "chuck table" 15 are movable between a "processing area" where the workpieces W mounted thereon can be machined via, for example, grinding wheel 120 or grinding wheel 122, and a "take-in/take-out" area where workpieces can be moved thereto or therefrom via either the workpiece take-in means 37 or the workpiece take-out means 38, respectively (see Figure 1, also paragraph 0026, for

Art Unit: 3722

example). Note that the grinding wheels can be moved in the vertical direction (which is perpendicular to the “placing surface” of the “chuck table” 15, see Figure 1) via feeding units 11 and 13, for example.

Re claim 2, note that “workpiece conveying means” 36 removes workpieces W from cassette 31, and that “temporary storage portion” 32 temporarily stores the workpiece carried by the conveying means 36 (Figure 1, also paragraph 0026), and a workpiece W is conveyed from temporary storage portion 32 to the “chuck table” 15 via the “take-in means” 37 (see Figure 1, also paragraph 0026).

Re claim 3, take-out means 38 places the processed workpieces in the cleaning means 33, and “workpiece conveying means” 36 is used to move the cleaned workpiece from the cleaning means 33 to a storage “cassette” 34 (Figure 1, paragraph 0026).

Arai teaches a that the “cutting tool” is a grinding disk, and arguably does not teach that such grinding disk includes a “cutting blade” as now set forth in claim 1.

However, ‘954 teaches a cutting unit configured similarly to that of Arai and having a vertically movable (along guides 33, see Figure 7) cutting tool/grinding wheel 13, which cutting tool/grinding wheel 13 has mounted thereon at least one cutting blade (such as element 15 in Figures 3, 4, and 8, element 19 in the embodiment of Figure 5, or elements 22 in the embodiment of Figure 6, see also col. 3, lines 6-24, for example).

It is noted that ‘954 explicitly teaches that the workpiece is a semiconductor wafer 10 having numerous bumps 11 that are machined to be planar (see Figure 9, Figure 1A, Figure 2, and col. 2, line 61 through col. 3, line 5, for example).

Art Unit: 3722

Additionally, '954 explicitly teaches that the cutting device having the cutting blades taught by '954 is advantageous over conventional grinding wheels because there is less damage to other portions of the semiconductor chip due to burrs that pluck at the semiconductor chip, and also because grinding wheels produce sticky debris that prevent the grinding wheel from being used continuously, which problems are overcome with the device having the cutting blades (see col. 1, lines 31-45 and col. 2, lines 22-33, for example).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have substituted the grinding wheel having cutting blades thereon as taught by '954 for the traditional grinding wheel taught by Arai for the purpose of eliminating the damage caused to other portions of the semiconductor chip by burrs and for the purpose of precluding the sticky debris from causing problems, thus increasing manufacturing efficiency, as explicitly taught by '954 as described above.

4. Claims 4-5, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. Publication No. 2002/0004359 to Arai in view of JP-2000-173954-A (hereinafter '954) as applied to claims 1-3 above, and further in view of Applicant's Admitted Prior Art.

Arai in view of JP '954 teaches all aspects of the claimed invention as described above, but does not teach the "fluid supply means" (claim 4) that provides "ionized air" (claim 5).

However, in the preceding Office Action, Examiner took Official Notice that the provision of a fluid supply means to a machining operation such that ionized air is provided to the workpiece at the time of machining in order to neutralize any static electricity created during the machining process is well-known in the art.

Art Unit: 3722

It is noted that this assertion (that the provision of a fluid supply means to a machining operation such that ionized air is provided to the workpiece at the time of machining in order to neutralize any static electricity created during the machining process is well-known in the art) is taken to be admitted prior art because Applicant did not previously traverse the Examiner's assertion. See MPEP section 2144.03, section C, for example.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have provided such a fluid supply means supplied with ionized air, as is known in the art, to the device taught by Arai in view of JP '954 such that the ionized air was supplied to the workpiece on the chuck table 15 at the time of machining for the well-known purpose of neutralizing any static electricity created during the machining process.

Response to Arguments

5. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

Art Unit: 3722

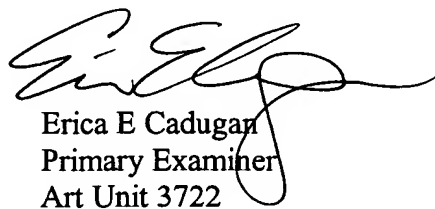
CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erica E. Cadugan whose telephone number is (571) 272-4474. The examiner can normally be reached on M-F, 6:30 a.m. to 4:00 p.m., alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Monica S. Carter can be reached on (571) 272-4475. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Erica E Cadugan
Primary Examiner
Art Unit 3722